

Message

---

**From:** Grange, Gabrielle Fenix [Gabrielle.Grange@doh.hawaii.gov]  
**Sent:** 4/4/2018 8:45:34 PM  
**To:** TU, LYNDSEY [Tu.Lyndsey@epa.gov]  
**Subject:** RE: Matt Tonkin's notes from last week's meetings

Sorry to miss connecting this am. I have back to back meetings until 12:30 my time, and will try call you then. Fenix

---

**From:** Grange, Gabrielle Fenix  
**Sent:** Tuesday, April 3, 2018 1:57 PM  
**To:** TU, LYNDSEY <tu.lyndsey@epa.gov>  
**Subject:** FW: Matt Tonkin's notes from last week's meetings

Lyndsey,

G.D.'s notes I was referring to were the ones we circulated internally - see below which include both the five points and his comments on the data deliverable. I've attached Matt's notes from the same time period and GDs breakthrough curve related to item 1 on his list. We don't need to include them all, but just want to ensure our comments on the agenda reflect our experts identified needs to make the best use of our time. Along those lines, we may want to be schedule a second meeting to have a chance to mutually confirm our understandings - the last couple have been technical the whole way. Up to you.

Fenix

---

**From:** Grange, Gabrielle Fenix  
**Sent:** Friday, March 23, 2018 4:12 PM  
**To:** 'Matt Tonkin' <matt@sspa.com>; Whittier, Robert <Robert.Whittier@doh.hawaii.gov>; Pallarino, Bob <Pallarino.Bob@epa.gov>; Ichinotsubo, Lene K <lene.ichinotsubo@doh.hawaii.gov>; Kwan, Roxanne S <roxanne.kwan@doh.hawaii.gov>  
**Cc:** TU, LYNDSEY <Tu.Lyndsey@epa.gov>; Shalev, Omer <Shalev.Omer@epa.gov>; Linder, Steven <Linder.Steven@epa.gov>  
**Subject:** RE: Matt Tonkin's notes from last week's meetings

Thanks, Bob.

A pre-meeting on Wednesday for the CSM webinar on Thursday is a good idea. 10 am HST/1 pm PST works for me.

We appreciated Matt's notes on our recent meetings. To keep the dialogue going, I have pasted below some technical notes in italics I requested from G.D. on our recent LNAPL tech meeting as well as some questions he raised about the sufficiency of the data set recently delivered to us on DVD. This would be a good topic to touch on in our discussion or by email in the interim.

Fenix

**Subject:** *Re: Mtg. Summary for March 20, 2018 Tech. Discussions*

*Bob & Fenix,*

*Fenix, per your suggestion, here are a few specific technical rebuttals relating to the Navy LNAPL call on Tuesday. Again, part of our challenge in being more precise is the absence of the compiled & QC'd database of analytic data (g.w. & vapor primarily). Here are some technical concerns:*

1. The Navy contends that "scatter" in RHMW02 is the best explanation for its apparent breakthrough curve. The peak of these detections were greater than at any other period and more of them, and directly follow the 2014 release in time. The Navy presented no statistics of relevance, they just interpreted the data in a manner consistent with their conclusion that LNAPL did not reach the g.w. table due to the 2014 release. Clearly, at the concentrations noted in the solubility range of jet fuel, product is in contact with g.w., even if by some chance it was not caused by 2014. Frequency and magnitude of impacts at several locations are consistent with some % of the 2014 release hitting g.w. (along w/other lines of evidence). In short, things changed directly following 2014; the Navy says it's all coincidence, I suggest possibly not (the conservative assumption).

2. The Navy continues to apparently ignore analyte detections at Red Hill shaft, which in of itself, indicates a travel distance of at least 3,000-ft, and when coupled with other detection locations, this suggests both distal transport and transport to the WNW are possibilities. These potentials are also generally consistent with biodegradation indicators. While not the only scenario explaining the data, it is the conservative one and one not considered by the Navy that we know of.

3. The Navy attempted to use methyl-naphthalene vs. naphthalene concentrations as proof of no new LNAPL contact with g.w. This approach could have value, but is unsupported at present for several reasons. To have meaning, first they need to show that m-naph is favored over naph degradation at this specific site, which they noted as aerobic. Their comparison site was Bemidji, where strongly anaerobic conditions exist and the LNAPL is crude oil, not jet fuel. Second, one needs to know the molar fractions of the initial analytes in the jet fuel released vs. that already present in the ground and the F&T characteristics of the system (how LNAPL/g.w. transport interact). The Navy showed nothing along those lines and acknowledged they have no forensic chemistry data by which to resolve any of these underlying questions.

4. Chuck Newell went to a temperature gradient graph to interpret the bottom of LNAPL from the temperature profile, which then constrains his most likely scenarios in his compartment modeling approach. There are several problems with this. First, as LNAPL spreads with depth, it becomes less concentrated on a mass/volume basis. There would be little temperature change in the deepest portions of the release unless they are concentrated. Second, Chuck did not interpret the whole temp-positive profile as having LNAPL (his selection criteria is rather arbitrary, there are positive temps much deeper). Finally, he interpreted LNAPL at RHMW-01 at near-zero temperature differential. By that same criteria, LNAPL would be much deeper in RHMW-2 & -3. Further, if LNAPL is present in the vicinity of RHMW1, what does that say about the absence of conservatism in his modeling approach? Further, the approach seems to assume only one future release might occur, when depending on the failure analyses (which we don't have), there could be a much high frequency and the model approach would then become more non-conservative.

5. We don't have the slide deck, but if the approach is still the same as prior, this effort will not tell us anything about the distribution or rates of LNAPL migration following a release, but those are the important questions. The potential flux of contaminants to any resource will depend on the geometry of impacts, their proximity and rates of travel. Ultimately so will the containment of such if there is a future release. If the release spreads too far too fast for the RH system to contain them, then those have the potential to damage the wider sole-source aquifer system.

Here are his initial notes on the DVD data review:

*In my overview perusing of the data disks provided by the Navy, I do not see several items critical to our review, as follows. I'm sure I'm missing some things:*

1. The quantitative geologic model and the interpretations therein (dips, apertures, A's flow directions, etc.).
2. A single comprehensive fluid level gauging database or spreadsheet.
3. Same for analytic sampling.
4. Same for soil vapor monitoring.
5. Geophysical logs.
6. Hydraulic conductivity profiling.
7. Other supporting digital data.

So while there is a lot of truly good information (particularly thorough report references), we are still limited in the key data essentials we need. Just as one example, I would like to see some of our own groundwater gradient evaluations placed in context with what they throw at us in these meetings and to consider how those might relate to potential transport in directions other than accounted in the Navy models. I would also like to be able to run a screening LNAPL transport model, but cannot absent the fundamental underlying geologic data in working formats (like their old EVS mode). There is simply too much "believe us" in the Navy's approach with the agencies, and it's now at a point (for me

*at least) where I want to do just a little original work so I can consider transport possibilities that the Navy team is not discussing.*

---

**From:** Matt Tonkin [<mailto:matt@sspa.com>]

**Sent:** Friday, March 23, 2018 10:08 AM

**To:** Whittier, Robert <[Robert.Whittier@doh.hawaii.gov](mailto:Robert.Whittier@doh.hawaii.gov)>; Pallarino, Bob <[Pallarino.Bob@epa.gov](mailto:Pallarino.Bob@epa.gov)>; Grange, Gabrielle Fenix <[Gabrielle.Grange@doh.hawaii.gov](mailto:Gabrielle.Grange@doh.hawaii.gov)>; Ichinotsubo, Lene K <[lene.ichinotsubo@doh.hawaii.gov](mailto:lene.ichinotsubo@doh.hawaii.gov)>; Kwan, Roxanne S <[roxanne.kwan@doh.hawaii.gov](mailto:roxanne.kwan@doh.hawaii.gov)>

**Cc:** TU, LYNDSEY <[Tu.Lyndsey@epa.gov](mailto:Tu.Lyndsey@epa.gov)>; Shalev, Omer <[Shalev.Omer@epa.gov](mailto:Shalev.Omer@epa.gov)>; Linder, Steven <[Linder.Steven@epa.gov](mailto:Linder.Steven@epa.gov)>

**Subject:** RE: Matt Tonkin's notes from last week's meetings

Bob – you have a keen eye! It should have read “45 degrees:” I had been going to insert a figure in my notes but opted not to - and I think you know the area to which I refer from the maps.

Matthew J. Tonkin

S.S. Papadopoulos & Assoc., Inc.

505 N. Pine St., Williamsfield, IL 61489-9517

Web: [www.sspa.com](http://www.sspa.com) // Email: [matt@sspa.com](mailto:matt@sspa.com) // Skype: mattsspa

Office: (309) 616 9060 // Cell: (508) 815-9886

PRIVILEGED AND CONFIDENTIAL: This email and any attachments are intended only for the addressee(s) and may be confidential, proprietary, privileged, or otherwise protected by law from disclosure or use by a third party. If you are not the intended recipient, please delete this message and its attachments, and destroy any electronic or hard copies that you may have created. Thank you.

---

**From:** Whittier, Robert [<mailto:Robert.Whittier@doh.hawaii.gov>]

**Sent:** Friday, March 23, 2018 2:17 PM

**To:** Pallarino, Bob <[Pallarino.Bob@epa.gov](mailto:Pallarino.Bob@epa.gov)>; Grange, Gabrielle Fenix <[Gabrielle.Grange@doh.hawaii.gov](mailto:Gabrielle.Grange@doh.hawaii.gov)>; Ichinotsubo, Lene K <[lene.ichinotsubo@doh.hawaii.gov](mailto:lene.ichinotsubo@doh.hawaii.gov)>; Kwan, Roxanne S <[roxanne.kwan@doh.hawaii.gov](mailto:roxanne.kwan@doh.hawaii.gov)>; Matt Tonkin <[matt@sspa.com](mailto:matt@sspa.com)>

**Cc:** TU, LYNDSEY <[Tu.Lyndsey@epa.gov](mailto:Tu.Lyndsey@epa.gov)>; Shalev, Omer <[Shalev.Omer@epa.gov](mailto:Shalev.Omer@epa.gov)>; Linder, Steven <[Linder.Steven@epa.gov](mailto:Linder.Steven@epa.gov)>

**Subject:** Re: Matt Tonkin's notes from last week's meetings

Hi Matt,

Very comprehensive review of the last week's meetings. I do have a question; on Page 3 you state "however, there are distinctly different gradients in the are Red Hill, differing by as much as 4 degrees or possibly greater...." . Is this a typo, since it seems a difference of 40 would be pretty minor.

Thanks,

Bob W

**From:** Pallarino, Bob <[Pallarino.Bob@epa.gov](mailto:Pallarino.Bob@epa.gov)>  
**Sent:** Friday, March 23, 2018 7:16:37 AM  
**To:** Grange, Gabrielle Fenix; Whittier, Robert; Ichinotsubo, Lene K; Kwan, Roxanne S  
**Cc:** TU, LYNDSEY; Shalev, Omer; Linder, Steven  
**Subject:** Matt Tonkin's notes from last week's meetings

DOH folks,

Attached are Matt's notes from the meetings last week, including some notes from the LNAPL call this past Tuesday. Please forward to Gary and Don Thomas.

Also, we would like to have a premeeting for the CSM webinar scheduled for Thursday March 29. If possible we would like to schedule the premeeting for Wednesday March 28. For us in California and Matt in Illinois the sometime around 1:00 pm PDT would be best. I am proposing a one hour call. Please let me know if you, Gary and Don are available and I will send an invitation with a call in number.

Bob Pallarino  
U.S. EPA Region 9  
Underground Storage Tank Program Office  
Land Division  
LND-4-3  
75 Hawthorne Street  
San Francisco, CA 94105  
(415) 947-4128  
[pallarino.bob@epa.gov](mailto:pallarino.bob@epa.gov)